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State of Utah
DEPARTMENT OF NATURAL RESOURCES
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July 30, 2012

David Hibbs, Resident Agent
Genwal Resources, Inc.
P.O. Box 910
East Carbon, UT 84520-0910

Subject: Revised Probable Hydrologic Consequences Update, Genwal Resources, Inc., Crandall Canyon Mine, C/015/0032, Task ID #4103

Dear Mr. Hibbs:

The Division has reviewed the revised Probable Hydrologic Consequences (PHC) determination for the Crandall Canyon Mine. The Division has determined that there are deficiencies that must be addressed before a determination can be made that the requirements of the R645 Coal Mining Rules have been met, and an approval can be granted. Those deficiencies are listed as an attachment to this letter.

Each deficiency identifies its author so you and your staff can directly communicate with that individual should any questions arise.

The plans as submitted are denied. Please resubmit the entire application by September 17, 2012.

Sincerely,

Daron R. Haddock
Coal Program Manager

DRH/SKC/ss
Enclosure
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Deficiency List

Task No. #4103

Revised Probable Hydrologic Consequences

The members of the review team include the following individuals:

Steve Christensen(SC)
Ken Hoffman (KH)

R645-301-728: The Permittee should address/revise references to Appendix 7-66. On pages 19, 23 and 25 of Appendix 7-15, the Permittee directs the reader to Appendix 7-66 and Figures 2, 3, and 4 in discussing mine-water discharge rates. The reference may be in error. Appendix 7-66 is the Burma Pond Evaporation Basin amendment currently under review by the Division (Task ID #4138). It appears that the Permittee was referring to Appendix 7-67 and Plots 4, 5 and 6 as these plots depict the mine-water discharge, a 6-month running average of the mine-water discharge as well as average yearly mine-water discharge rates. (SC)

R645-301-724, -724.500 and -728: The Permittee shall add quarterly monitoring of the untreated minewater discharge (sample location Pre-002) for the isotopic parameters carbon 14 (14C), oxygen 18 (δ18O), deuterium (δ2H), and tritium (H3) to the MRP. (SC)

R645-301-724.420, 301-728.200: The Permittee is to provide an analysis of barometric pressure compared to flow or modify/remove the following statement: "*Additionally, there is no correlation evident between mine water discharge rates and climatic variability*". If an analysis cannot be completed with available data, then the Permittee shall remove the statement and supply a plan for collection of data to conduct this analysis in the future. (KH)

R645-301-728.310: The Permittee must reinsert Table 1 and correct the following errors or deficiencies in Table 1 to describe whether adverse impacts may occur to the hydrologic balance: (KH)

- Acid-toxic Materials, Table 1, Page 52: The likelihood of toxic-forming materials must be shown as either "moderate" or "high". The elevated (greater than 1 mg/L) iron concentrations in the untreated mine water discharge are evidence that "toxic-forming materials" are present within the coal, overburden, or underburden at the Crandall Canyon mine.
- Groundwater Availability, Table 1, Page 52: The probability of occurrence for interception of inactive zone groundwater by mine workings is "high (observed)" not "low". This table entry must be revised to agree with the inactive zone groundwater discussion presented elsewhere in the PHC.
- Surface Water Quality, Table1, Page 52: An entry is required identifying "spilled or residual treatment chemicals" as a potential impact to surface water quality.
- Surface Water Quantity, Table 1, Page 52: The Permittee must revise this table entry or explain how mine discharge treatment to reduce iron concentrations is a mitigation measure for surface water quantity.

- Surface Water Quantity, Table 1, Page 52: Toxicity was detected during WET testing from the treatment plant discharge on June 7 and 28, September 1, October 3, and October 11, 2011. The Permittee shall add an entry to the table for surface water quality toxicity with a probability of occurrence of "high (observed)" and mitigation.
- Surface Water Quantity, Table 1, Page 52: The August 22, 2011 *Crandall Canyon Mine Macroinvertebrate Study* states "*there continues to be a less healthy macroinvertebrate community at both CRANDMD-02 and CCRANDLWR-03, which are downstream of the discharge, than at CRANDUP-01, which is upstream of the discharge.*" The Permittee shall add an entry to the table for surface water quality damage to macroinvertebrate communities and habitat with a probability of occurrence of "high (observed)".

R645-301-120: The Permittee must address the following deficiency to ensure the application contains current information which is clear and concise. Increased Sediment Loading, 2nd paragraph, Page 29: The storage volume values provided for the discussion of the sediment pond do not agree with values provided in Appendix 7-4 Sediment and Drainage Control Plan, Table 11 Sediment Pond Design. Revise the text or Appendix 7-4 as appropriate. (KH)